

L118,069



## PATENT SPECIFICATION

DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

## Ball Point Pen

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I, GIANFILIPPO PAIZER, of 86/10, Via Re-francore, Turin, Italy, of Italian Nationality, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to pens generally and more particularly to a ball point pen provided with a source of light and adapted to be intermittently illuminated each time a pressure is exerted on the point of the refill, the electric circuit of the source of light being adapted to be closed when writing and to be opened when the pen is at rest, by the up and down movement of the refill.

The source of light may consist of a dry battery with an associated incandescent bulb and the pen may comprise an upper and a lower tubular element adapted to and so arranged as to hold the incandescent bulb in the required position for illumination of the pen.

Advantageously the ball point pen according to the invention may comprise a source of light, an upper and a lower tubular element, the lower tubular element tapering downwardly and having at its lower end an opening for the passage of the point of a refill and at its upper end an internal thread; a first sleeve seated within the upper element and containing a dry battery, an annular collar having a central aperture and located at the lower end of said first sleeve and at the lower end of said internal thread in the lower element, said upper element being provided with an external thread at its lower end and adapted to be screwed into said lower element and having transparent walls to allow the passage of light, an incandescent bulb screwed into the upper end of said first sleeve, said dry battery having one terminal in contact with said incandescent bulb and another terminal communicating with said aperture in said annular collar, a second cylindrical sleeve extending downwardly from

said aperture in said annular collar, a head on the upper end of the refill slidably engaging in said second sleeve, a disc on the refill near the head thereof and slightly larger in diameter than the diameter of said second sleeve, elastic means inserted between said disc and said annular collar at the lower end of said first sleeve so as to urge the refill with its point outwardly of the lower element, and an electric conductor mounted within said first sleeve and connecting the shell of the bulb with a conducting coating of the sleeve, the arrangement being such that the electric circuit is closed and said incandescent bulb illuminated each time when said head of the refill, slidable within said second sleeve, is moved into contact with said dry battery by the pressure exerted on the point of the refill when moving over the paper during writing, while said elastic means returns the refill into its original position with its point outwardly of said lower element and opens the electric circuit when the pen is removed from the paper thus switching the light intermittently and successively on and off.

The pen according to this first embodiment of the invention may advantageously be used for publicity purposes. In fact, the transparent walls of the illuminated upper tubular element may carry engraved or embossed or printed publicity inscriptions which will appear magnified when illuminated.

According to another embodiment of the invention, the upper tubular element may be circular in cross section and a projector may be disposed in its interior to project an image, drawing or publicity inscription carried by a transparency.

The projector may be disposed within and along the length of the upper element and comprise a plano-convex lens serving as a condenser for rendering the light rays coming from the source of light convergent toward the transparency, a parabolic reflector behind the

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source of light, and a biconvex lens serving as an objective disposed at a distance from the transparency, suitable for producing, on a screen outside the pen, a clear magnified image of the image on the transparency, and the distance between the biconvex lens and the transparency may be varied by screwing the biconvex lens manually in and out of the upper tubular element so as to make the reproduced image larger or smaller and bring it into focus.

Preferably the upper end of the upper element is provided with a transparent cap carrying publicity means.

Two preferred embodiments of the invention will now be described by way of example and with reference to the accompanying drawing, in which:—

Fig. 1 is an axial section of a ball point pen according to the invention in vertical elevation;

Fig. 2 is a transverse section taken on the line X—X of Fig. 1, and

Fig. 3 is a vertical elevation, partly in axial section, of another embodiment of the ball point pen according to the invention.

Referring now more particularly to Fig. 1, a ball point pen as proposed by the present invention comprises a tubular element A and a tubular element B both of insulating material (plastics). The lower tubular element A tapers downwardly and has at its lower end an aperture for the passage of a point 1 of a refill 2. The opposed upper end of the tubular element A is provided with an internal thread 3 at the lower end of which a sleeve 5 is disposed with an annular collar 4. The sleeve 5 is also made of insulating material and serves to receive a dry battery 6 and is securely held by the upper element B which threads into the threaded upper end of the lower element A. The upper element B is preferably polygonal in cross section, as seen in Fig. 2, and its walls are transparent to permit the passage of light. The sleeve 5 has a lateral aperture 7 to permit the dry battery 6 to be mounted. One terminal of the dry battery 6 is in contact with an incandescent bulb 8 which is screwed in at the upper end of the sleeve 5. The other terminal of the dry battery 6 communicates with an aperture 9 provided in the centre of the annular collar 4. Adjacent the aperture 9, the annular collar 4 is extended by a cylindrical sleeve 10 provided with a coating 11 of conductive material which slidably receives a metallic head 12 on the refill 2, forced into the sleeve 10 by the pressure exerted at the opposite end on the point 1 of the refill 2. The point 1 of the refill 2 is urged outwardly of the tubular element A by a spring 13 interposed between the annular collar 4 and a disc 14 secured to the refill 2.

A conductor wire 15, preferably sunk into the insulating material of the sleeve 5, ensures electric connection between the shell of the bulb 8 and a conductive coating 11 on the

sleeve 10 so as to close the electric circuit and thus switch on the incandescent bulb 8 when the refill 2, urged in the direction of the arrow, moves with the conical point of its head 12 into contact with the dry battery 6.

The tubular element B may further be provided with an upper cap 16 of transparent plastics material permitting the passage of light.

In the embodiment shown in Fig. 2, the incandescent bulb 8 screwed into the sleeve 5 has an interposed parabolic reflector 17 and along the interior of the upper element B a sleeve 18 carrying a plano-convex lens 19 is disposed in an appropriate position for projection of a photographic transparency 20, while an externally threaded ring 21 carrying a biconvex lens 22 is screwed in at the free end of the upper element B so that its distance from the transparency 20 can be adjusted by screwing this ring more or less into the element B and thus obtain a more or less magnified clear picture.

It will be evident that the transparency may carry pictures, drawings or publicity inscriptions to be projected and magnified.

Although it has not been specifically shown, the ball point pen according to the invention may be provided with an automatic release of the known type to work as a switch which would keep the refill, if desired, always in the position for closing the electric circuit and projecting the image of the transparency for any desired time on to a screen.

#### WHAT I CLAIM IS:—

1. A ball point pen comprising a source of light and adapted to be intermittently illuminated each time a pressure is exerted on the point of the refill, the electric circuit of the source of light being adapted to be closed when writing and to be opened when the pen is at rest, by the up and down movement of the refill.

2. A ball point pen comprising a source of light and an upper and a lower tubular element adapted to and so arranged as to hold said source of light in the required position to intermittently illuminate the ball point pen each time a pressure is exerted on the point of a refill, the electric circuit of the source of light being adapted to be closed when writing and to be opened when the pen is at rest, by the up and down movement of the refill.

3. A ball point pen comprising a source of light, an upper and a lower tubular element, the lower tubular element tapering downwardly and having at its lower end an opening for the passage of the point of a refill and at its upper end an internal thread, a first sleeve seated within the upper element and containing a dry battery, an annular collar having a central aperture and located at the lower end of said first sleeve and at the lower end of said internal thread in the lower element, said upper element being provided with an external